



Grand Canyon Near Shore Ecology Study



Figure 1. A juvenile humpback chub displaying two visible implant elastomer tags (orange and green slashes). Placement of these markings in particular places on the fish indicates when and where the fish was originally tagged (Photo: Bill Pine).

By Marianne Crawford and Dave Speas
Upper Colorado Regional Office

On July 25, Dr. William Pine from the University of Florida presented the results of the Grand Canyon Near-shore Ecology study (NSE) for the Upper Colorado Regional Office and invited guests. The study, which consisted of four years of intensive fishery field investigations and data analysis, was funded by Reclamation in cooperation with the Grand Canyon Research and Monitoring Center (GCMRC) as a conservation measure of the 2008 Biological Opinion on Glen Canyon Dam operations. The goal of the study was to relate dam operations to ecological attributes of near-shoreline fish habitats and to determine the relative importance of various habitat types to critical life stages of native and nonnative



fishes under contrasting flow regimes. This study was designed to increase our understanding of juvenile native fish habitat requirements and identify how habitat selection, preference, and availability affect native vital rates such as growth and survival. To facilitate the study, operators at Glen Canyon Dam delivered an experimental steady discharge during the months of September and October from 2008 through 2012, which provided the opportunity to examine fish use of various near-shore habitat types during steady and fluctuating flow operations. While reports and publications from the study are forthcoming, Dr. Pine summarized the key results and highlights in his presentation to the UC Region.

The 2008 pilot study worked out fundamental logistic details and specific techniques such as gear types for catching juvenile fish in the mainstem river and sampling methodologies to determine density, growth, and survival during the two flow regimes. The pilot study was followed by intensive field sampling from 2009 to 2011 below the confluence of the Little Colorado River (LCR) and the mainstem Colorado River (figures 2, 3). Field sampling trips were conducted once per month during July and August under fluctuating flows and during the steady flow period of September and October. Sampling occurred at three sites measuring 1,500 meters on each side of the river. For three weeks during each sampling occasion, crews collected fish and other habitat data almost continuously, day and night. Their home away from home was a rocky crag just big enough to fit the crew of up to 15 people, their kitchen, laboratory, and beds, but not much more (Figure 4). Weather conditions ranged from hot to hotter, with torrential rain thrown in during the monsoon months.

Biologists used a variety of fish capture gear types to collect fish, including hoop nets, seines and electrofishing (Figure 5), which stuns fish through the use of an electric current passed through the water. Some fish were marked with elastomer pigments (Figure 1), a temporary mark which allows researchers to identify fish captured during previous trips. A small subset of the total catch was implanted with radio transmitters, also, to follow fish movement among habitat types in real time. Still others were sacrificed for collection of their otolith, or “ear stones” to determine their natal origins (see below).

The study site has historically supported the highest density of humpback chub in Grand Canyon due to its proximity to the LCR where humpback chub spawning is known to occur. Fish collection methods devised during the pilot study proved to be highly successful. For example, during the span of a single sampling trip, investigators captured more endangered humpback chub than had ever been encountered in all the previous decades combined. The success of sampling during NSE showed that these habitats were “swamped” with juvenile HBC and all available habitat types were being utilized. Juvenile HBC abundance estimates derived during NSE were the first ever achieved in the mainstem Colorado River.

Dr. Pine highlighted key findings of the three years of research. Juvenile HBC did not show strong nearshore habitat relationships and they had similar daily movements and habitat use, regardless of the flow events. All shoreline habitats were being used by chub within the sampling area but highest abundance occurred in talus slopes, which are made up of large angular chunks of the eroding canyon walls. There was no obvious change in their HBC abundance related to the steady flow experiment. An unexpected finding was that juvenile HBC growth actually declined during steady flows in the mainstem. This may have been due to cooler water temperatures associated with the fall months, when the sun is much lower in the sky and river warming rates are lower than during the summer months. Predation was highest when the turbidity of the water was intermediate (between clear and opaque). This degree of water clarity exposes juvenile fish to multiple species of predators, both those that locate their prey by sight and those that use olfactory and other senses to locate prey.

Water quality differences between the mainstem Colorado and the LCR are distinct and provide chemical markers in the rings of HBC otoliths. Otoliths or ear stones are tiny calcified structures associated with a fish’s sense of hearing that have growth rings much like the rings of a tree. These rings or annuli are used for determining the age of fish and other aspects of its life history (Figure 6). Otoliths also accumulate isotopic elemental signatures that occur in the water around them. These signatures usually



contrast sharply from one water body to the next; those contrasts can be seen in the fish's otoliths. For example, a fish born in the LCR will have an LCR signature at the core of its otolith, signifying its birth place, but a Colorado River signature near the edge of the otolith indicates where it has spent the more recent years of its life.

Humpback chub otoliths were analyzed at Cornell University, using scanning X-ray fluorescence and a high energy Synchrotron source. This very "high tech" analysis revealed previously undetected movements of young juvenile HBC in and out of the mainstem and the LCR. It also, indicated that more HBC spawning may be taking place outside of the LCR than was previously thought, perhaps in areas upstream of the LCR that are associated with warm springs. By combining these otolith markers with age and growth information the habitat use and success of HBC in different habitats can also be assessed. Whatever the ultimate outcome, use of otolith isotopic analysis is clearly a powerful tool in evaluating origins of fishes; such a technique has also been utilized successfully in the Upper Colorado River Basin to determine origins of invasive non-native fish.

Fundamentally, the study demonstrated that juvenile HBC within the study area are not significantly affected by the fluctuating versus steady flow treatments that were used in this experiment. There was considerable evidence to suggest, however, that the limited spatial and temporal design of the experiment may have restricted a full evaluation of hypotheses about river fluctuations, warming rates, and humpback chub growth and survival parameters. Dr. Pine recommended that nearshore monitoring continue as part of GCMRCs' annual sampling regime but additional downstream locations should be included to provide a contrast with findings from the LCR reach. Habitat use patterns of juvenile fish farther away from the LCR where they are not likely to be so abundant may provide an opportunity to more completely evaluate habitat preference and the "crowding" effect (i.e., fish occurring in all habitat types) would not be so pronounced. Varying shorelines types should be sampled, particularly those that are influenced more by discharge and stage of the river such as shallow backwaters and other gently sloping habitat types. Dr. Pine also recommended that fish otolith work be continued because it provides otherwise unattainable patterns of fish movement and an indication of the location of their origins.

In addition to the findings regarding fish behavior, survival and growth during steady versus fluctuating flows, a widely held assumption about humpback chub survival in the Colorado River took a sound beating from the results of the NSE study. For decades, the common assumption among many workers in Grand Canyon was that fish migrating from the LCR—particularly extremely young fish less than a year old—had a near-zero chance for surviving to adulthood in the harsh, cold environment of the Colorado River. By marking individual fish with elastomer tags and recapturing them at later dates, Dr. Pine's study demonstrated that not only can such fish survive in this environment at such a young age, but that they can do so for several years without unprecedented declines in abundance. They also demonstrate the ability to grow in size, which is also important to the fish from a survival standpoint. This finding will fundamentally change how the population dynamics of this endangered fish are evaluated in the Colorado River in Grand Canyon.

The NSE project has provided new and valuable information on the influence of dam operations on downstream resources and has expanded our knowledge on the life history of juvenile HBC and other native species. The study adds pieces to the puzzle that advance the adaptive approach of managing resources in the Grand Canyon and guides future scientific endeavors and management actions. In addition to these contributions, the NSE study provided three graduate students with Masters Degrees, and twelve papers are in various stages of peer review for publication in scientific journals. Reclamation should feel proud to be a key player in this study. We are encouraged by these finding and hope to see such innovative methods and rigorous analytical procedures continue in years to come as we continue to operate Glen Canyon Dam while minimizing impacts to the iconic national treasure that is Grand Canyon and its inhabitants.

Photos below



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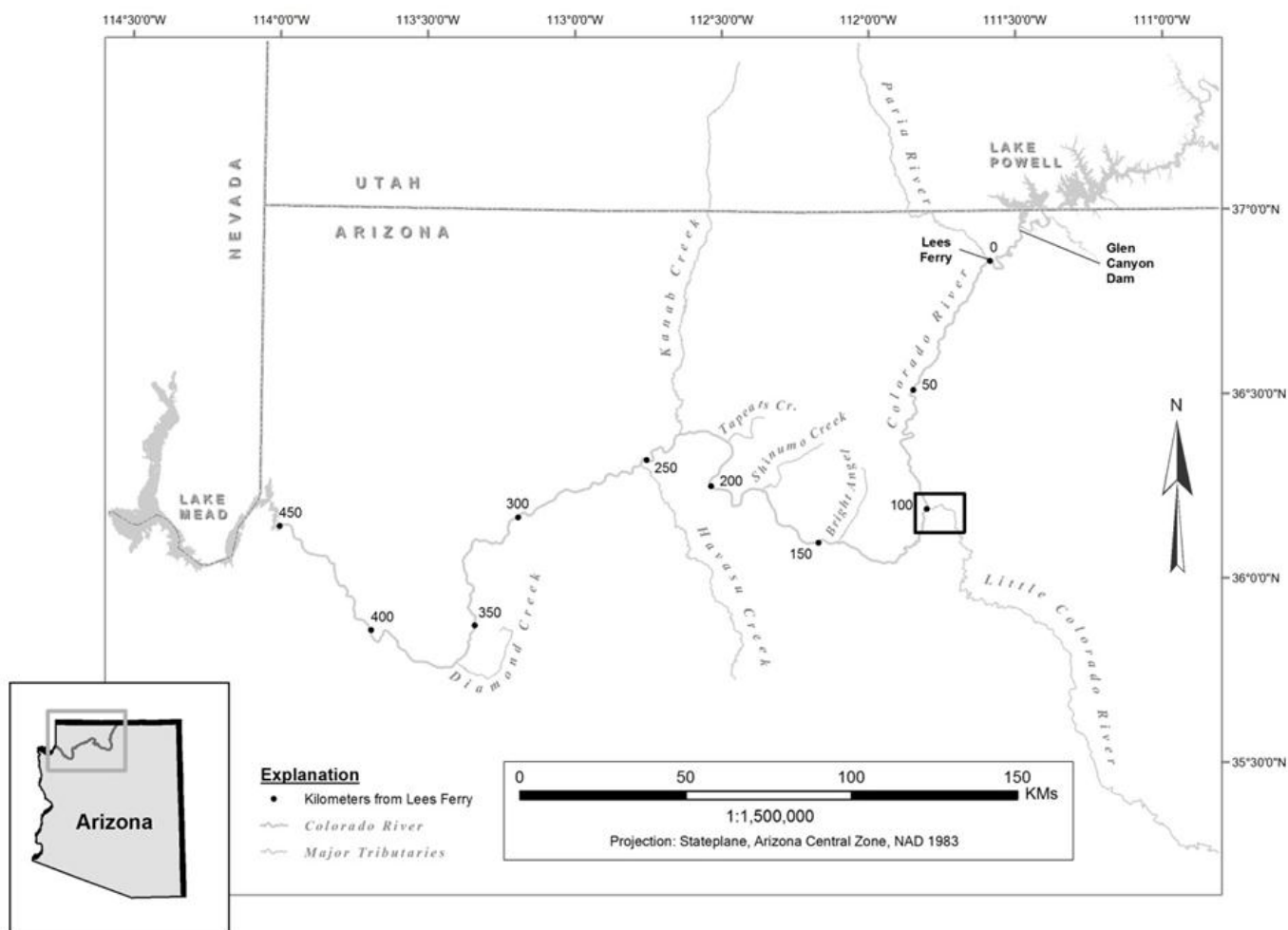


Figure 2. Map of Grand Canyon area showing nearshore ecology study site near the confluence of the Little Colorado River and the Colorado River (inset).





Figure 3. Confluence of the Little Colorado River (left) and the Colorado River (right). Calcium carbonate in the Little Colorado River gives it a turquoise coloration (Photo: Melissa Trammell, NPS).



Figure 4. The nearshore ecology science camp on the Colorado River, Grand Canyon. (Photo: Bill Pine)





Figure 5. Capturing fish using electrofishing gear, which temporarily stuns fish by passing an electric current through the water. Stunned fish are netted and placed in tanks where they quickly revive.

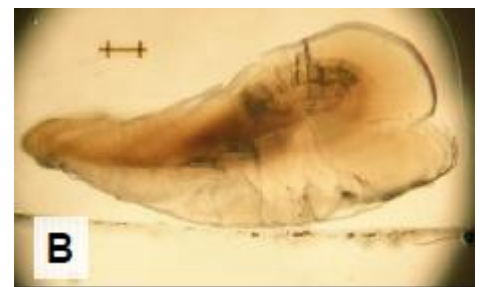


Figure 6. Photomicrographs of fish otoliths or “ear stones”. Concentric rings in the structures record the fish’s age as well as other life history attributes. Size: about 1-2 mm each.

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NGWSP Preconstruction Archaeological Field Activities

By Joseph Tuomey
Area Archaeologist
Western Colorado Area Office

The Western Colorado Area Office of Reclamation is engaged in archaeological field exploration work as part of design studies for the Navajo Gallup Water Supply Project (NGWSP). The field work will consist of pre-construction testing and data recovery mitigation activities along the proposed potable water pipeline alignment which will consist of approximately 280 miles of pipeline, approximately 22 pumping plants, and two water treatment plants.

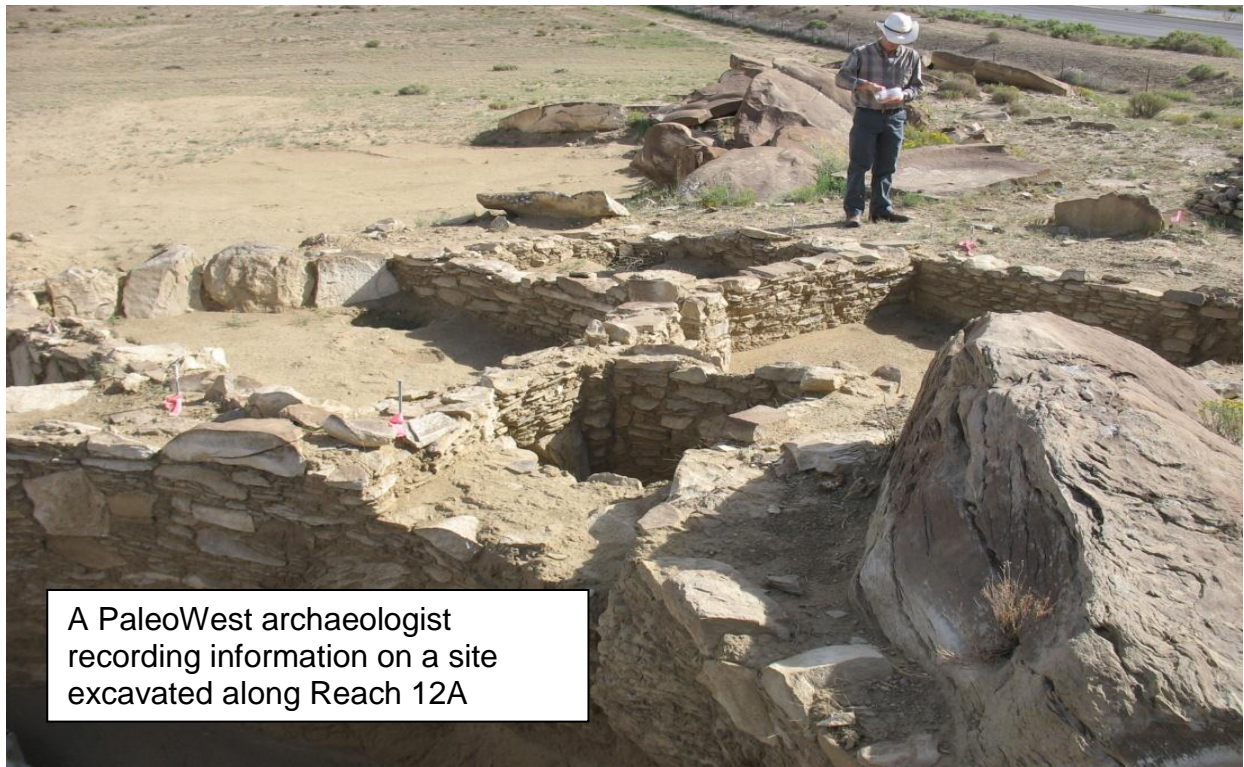
The field investigations are required to identify and protect cultural and historic sites along the proposed water supply pipeline alignment and to fulfill our federal responsibilities under Section 106 of the National Historic Preservation Act. The NHPA is the pivotal historic preservation law that establishes Reclamation's cultural resources management responsibilities. Avoidance of cultural resource sites is the goal but this not always possible. This work is currently being performed under a 5 year contract with PaleoWest Archaeology Services.

Field activities will allow Reclamation to gather information required for design and to allow construction to proceed. These field activities include ground surveys, geological and geophysical surveys, archaeological surveys and subsurface archaeological exploration and testing and data recovery mitigation.

The archaeological testing and data recovery excavation may be done by hand or by backhoe. Cultural resource contractor PaleoWest will excavate through the soils to a depth of up to ten feet to determine site boundaries site depth and the nature of these sites. Data recovery excavation will occur on sites found to be within the construction right of way if avoidance is not possible. When avoidance is not possible, data recovery will document the information potential of a site before construction activities destroy the site.

Photos below





A PaleoWest archaeologist recording information on a site excavated along Reach 12A



A cultural resource site on Reach 12A excavated for data recovery mitigation

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Legislative Framework for Addressing Hazardous Waste

By Nancy Coulam
Chief, Environmental Compliance Group
Upper Colorado Regional Office

The UC Region, like all federal facilities, is subject to compliance with environmental laws designed to protect human health and the environment from exposure to hazardous waste and contaminants. Congress has enacted several regulatory programs to protect the nation's air and water resources, as well as to ensure public health. The region maintains an audit program to ensure compliance with the following major environmental laws.

Clean Air Act

The Clean Air Act limits emissions of pollutants into the atmosphere, such as sulfur dioxide, particulate matter, nitrogen dioxide, carbon monoxide, ozone, and lead. The EPA established the National Ambient Air Quality Standards (NAAQG). Congress also mandated that the EPA control emissions from specific industrial sources. Under this statutory authority, EPA designated hazardous air pollutants and set the National Emissions Standards for Hazardous Air Pollutants (NESHAPs). The states have primary responsibility for implementing both the NAAQS and NESHAPs.

Clean Water Act

The Clean Water Act imposes pollutant limitations for all discharges of wastewater from identified ("point") sources into the nation's waters. These discharges are defined as either direct discharges, indirect discharges, or zero discharges. Direct discharges are discharges from "point sources" into surface waters and are regulated under the National Pollutant Discharge Elimination System (NPDES).

Under indirect discharges, the wastewater is first sent to a publically owned treatment works (POTW), then after treatment by the POTW, discharged pursuant to a NPDES permit. Under these requirements, the generator of the wastes cannot just transfer the waste to a POTW. Rather, the wastes must satisfy applicable treatment and toxic control requirements known as pretreatment standards.

Zero discharges mean the wastewater is not being discharged to a navigable water, but rather is land disposed (e.g. through spray irrigation) or is disposed of through underground injection. Zero discharge facilities are subject to regulatory limitations as strict as those that apply to direct and indirect dischargers.

The CWA also includes provisions to control oil spills into navigable waters of the U.S. These Spill Prevention, Control, and Countermeasures (SPCC) regulations establish spill prevention procedures and equipment requirements for facilities with certain aboveground or underground oil storage capacities.



Safe Drinking Water Act

The Safe Drinking Water Act protects the nation's drinking water supply by establishing national drinking water standards or specific treatment techniques, and by regulating underground injection control (UIC) wells. The UIC program bans some types of underground disposal of hazardous wastes.

Emergency Planning and Community Right to Know Act

The Emergency Planning and Community Right to Know Act (EPCRA) were passed by Congress in 1986 in response to deaths caused by the release of a toxic chemical in Bhopal, India. The EPCRA is intended to help communities prepare to respond in the event of a chemical emergency, and to increase the public's knowledge of the presence and threat of chemicals. The EPCRA requires the formation of state and local committees to prepare for potential chemical emergencies and to coordinate the emergency response.

The EPCRA requires facilities to notify the state and local authorities if releases of certain chemicals occur. Facilities must also compile specific information about hazardous chemicals they have on site and the threats these chemicals pose.

Toxic Substances Control Act

The focus of the Toxic Substances Control Act (TSCA) is to control the manufacture and sale of certain chemical substances. These requirements include testing to chemical in production or use, and controlling unreasonable risks once a chemical is determined to have an adverse effect on health or the environment. Among the substances that the TSCA and its regulations control are polychlorinated biphenyls (PCBs) and asbestos. Both the U.S. Environmental Protection Agency and the Occupational Safety and Health Administration are responsible for regulating environmental exposure and protecting workers from asbestos exposure.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) was enacted in 1976 to established a "cradle to grave" regulatory scheme covering the generation, use, transport, and disposal of solid and hazardous wastes. The U.S. Environmental Protection Agency has primary responsibility for implementing RCRA. RCRA's corrective action program is designed to investigate and guide the cleanup of any contaminated air, groundwater, surface water, or soil from hazardous waste management of spills or releases into the environment as a result of the past and present activities at RCRA-regulated facilities. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), referred to as Superfund, is a related statute that deals with cleaning up inactive and abandoned hazardous waste sites.

Occupational Safety and Health Act

The Occupational Safety and Health Act (OSHA) are designed to save lives, prevent injuries, and protect the health of employees in the workplace. The OSHA accomplishes these goals through several regulatory requirements, including the Hazard Communication Standard (HCS). The HCS was promulgated to provide workers with information about the hazards and identities of the chemicals they are exposed to while working, as well as the measures employees can take to protect themselves. The OSHA's HCS requires employers to establish hazard communication programs to transmit information on the hazards of chemicals to their employees by means of labels on containers, safety data sheets, and trainings.

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RECLAMATION

Managing Water in the West

August 2013
Upper Colorado Region



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The History of My Career - Francis Marion Warnick part 2 of 4



Wm. R. Wallace pushes plunger that shoots first round in excavation of Gateway Tunnel. January 9, 1953. Left to right: T. A. Clark; H. H. Needham, H F Commander; LeRoy Smith; Harold Clark; W. R. White; G. R. Putnam, Vice President, Utah Core Co.

By Francis Marion Warnick
UC Regional Retiree

FMW Career

After a few minutes of conversation and realizing I did not recognize him, he rose to his feet, struck the desk with his fist and emphatically exclaimed, "G___D___, don't you know who I am? I'm E.B. Debler, your boss!" How small and embarrassed I felt, and he looked 10 feet tall standing there. He reminded me to never forget who he was, advised me he would be in the office at 8:00 am sharp the next day and I had better be on time, then left. I was shaken and it was several minutes before I regained my



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composure, put my desk in order, and went home. Needless to say, I alerted the staff to be on time the next day.

On the following day, although he was upset at my failure to recognize him, his review of the work we were engaged in went quite well and after a morning of discussions and some appropriate comments, criticism and suggestions, he commended us for our progress and challenged us to have our project selection complete in time for a meeting of all field supervisors in the spring. When he left for Denver, I was sure I would never forget E. B. Debler and I never did.

The staff was kept busy through the winter conducting water supply and reservoir operations studies, rough cost estimates, economic analysis and developing tentative project plans. I was kept busy reviewing the work of the staff and preparing for the spring meeting of the Field Supervisors.

Early in 1944, there was a major change in the organization of the Bureau of Reclamation. The Reclamation territory (U.S. West 100th Meridian) was divided into Regions. The Great Basin and the Colorado River Basin above Lees Ferry (Upper Colorado Basin) was designated as Region 4. The field planning offices and construction offices now reported to the Region who reported to the Commissioner in Washington D.C. The Chief Engineers Office became a design and technical support organization to the Regions. E. O. Larsen became the Regional Director and Reid Jerman Regional Planning Office. The action also gave me a pay increase to \$2,600 per year.

In March 1944 the Commissioner convened a two day meeting in Salt Lake City, Utah of Field Planning Officers working in the Colorado River Basin. The Regional Office not being fully functional, the meeting was held in a conference room at Hotel Utah. The purpose of the meeting was to review status of investigations and identify projects to be included in a comprehensive report. E. B. Debler, still associated with the Chief Engineers Office, chaired the meeting. The Field Officers were J.C. Douglas, Green River Basin above Flaming Gorge; Clifford Jex, Colorado River Basin in Colorado; John Hedderman, San Juan River Basin; Wayne Cahoon, Virgin River Basin; Clifford Pugh, Gila River Basin; and myself, Uintah Basin.

The first day, the Field Officers described the projects selected for inclusion in the report and described the status of on-going studies. All seemed to go as planned until Clifford Jex made a presentation. He seemed unable to describe the projects selected, though his maps seemed adequate. Mr. Debler, after listening for some time and asking some pointed questions, rose to his feet, pushed Mr. Jex aside and completed the description of the projects in Colorado, including a criticism of Mr. Jex, his presentation and the status of his investigation. The remainder of the presentations and related discussions, though strained, went well.

The following day was spent in outlining the format and content of the comprehensive report and ascertaining how long each area would need to complete their input. It was generally agreed that the work could be accomplished in a year. Mr. Jex, realizing he was behind schedule, asked for more time or staff. The outcome of a private meeting participated in by Debler, Larson, Jerman and Jex was never revealed to the Field Officers.

On returning to Vernal, my staff was briefed on the meeting and instructed and challenged to meet the established schedule. Additional field work involved geologic studies of selected dam sites as well as reconnaissance surveys of canal locations. Fortunately, the new Regional Office was able to furnish a geologist on a part-time basis. Our survey party was busy with canal surveys, and the office staff was busy with preliminary design, cost estimates, and economic studies. By early 1945, we were submitting our findings to the Regional Office and rumors were circulating that changes not recognize him, he rose to his feet, struck the desk with his fist and emphatically exclaimed, "G___D___, don't you know who I am? I'm E.B. Debler, your boss!" How small and embarrassed I felt, and he looked 10 feet tall standing there. He reminded me to never forget who he was, advised me he would be in the office at



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During my stay in Vernal, the local School District was conducting an adult education program and I was engaged to teach a night class in modern irrigation principles and practices. The winter of 1943-44 I had 10 students and the following year more than 20 participated.

In February 1945 I was asked to take an assignment in Gunnison, Colorado to conduct a reconnaissance study of potential consumptive use in the Gunnison River Basin. At this time the Area Planning Office in Pueblo, Colorado was studying the possible transmountain diversion of water from the Western slope to the Arkansas River.

Ben Powell, the Area Engineer, had generated some bad publicity for the Bureau when he located a small field office in Gunnison without consulting local leaders or Clifford Stone, Director of the Colorado State Water Board. The action resulted in a request to Region 4 to establish an office in Gunnison and conduct an in-basin study.

I was approached by Reid Jerman to establish a field office in Gunnison, Colorado and to be under the direction of Clifford Jex, the Area Engineer at Grand Junction. Having seen Jex in action and knowing he was behind schedule in his assignment, I indicated a reluctance to accept the transfer. Later when Larson and Jerman agreed I would be responsible to Jerman and only administrative matters would be handled by the Area Office did I agree to make the move. Of course, a promotion to Associate Engineer, salary \$3,200 per annum also influenced my decision as well as my wife's willingness to move again.

March 1945 was a transition. I made a trip in a government car to Grand Junction and conferred with Jex. We then together made a trip to Gunnison and vicinity where we made contact with Ed Dutcher, attorney; Henry Lake, a newspaper publisher, a postmaster, real estate people, etc. The community now knew we intended to establish an office in Gunnison and conduct a water and land resource study.

After a few days in Colorado, I returned to Vernal and spent a few days winding up my work there and packing. On March 23, we left Vernal and drove to Salt Lake. We spent Saturday morning conferring with Regional Office then drove to Lanark, Idaho to visit my wife's family. We spent the weekend there, returning to Salt Lake via bus on the 27th. My wife and two children remained in Idaho to visit her parents. After spending a day in the Regional Office discussing personnel needs and other matters, I took a night train to Grand Junction, arriving there the morning of March 29.

After spending a week in the Area Office in Grand Junction reviewing water supply and land classification data, I drove to Gunnison to establish an office there. It took me a week to rent a house and office space and install recorders at two stream flow stations that had been abandoned by Geological Survey because of the war. When I returned to Grand Junction, I learned the Regional Director wanted me to attend a meeting in Vernal on April 20. I spent the days before going to Vernal working up stream flow data and attending a Colorado Water Board Meeting at Glenwood Springs, where Jex and I outlined our work program for the next several months.

I took a train to Salt Lake on the 19th. Reid Jerman, Stuart McMaster and I drove to Vernal on the 20th and attended a meeting with Ashley Valley water users that evening. The next day we met with Brush Creek water users in Jensen, Utah. The meetings were held to outline project plans for the two areas and receive comments, suggestions, and reactions. I returned to Salt Lake late on the 21st.

I then spent a week on leave with family in Idaho and Hinckley, Utah; then we drove to Gunnison. Furniture was delivered by a government truck on May 2 and we established residence on Main Street just north of the Business District. On May 7, I moved office furniture and supplies to a rented space in the Quinn Building, 2nd floor. The remainder of the month was used in getting the office organized and in order, meeting with a local water users group and becoming acquainted with the area of responsibility. I



also had a visit from Ben Powell of the Pueblo Planning Office and his assistant. Mr. Jex also visited when I met with local leaders. I attended a Rotary Club luncheon with Ed Dutcher and met bankers, school administrators and business leaders of the community. Since I was a member of the Lions Club in Vernal, I attended the local Lions Club luncheon a few times to see if I might be welcome. I was readily accepted and my joining the club proved to be especially beneficial for the Bureau from a public relations standpoint. I met prominent ranchers and business men at Club meetings and through them met other key ranchers in the area. Aubrey Spann and Robert Porter were especially helpful in introducing me to key leaders. I became enough of a friend to Aubrey that I was invited one winter day (a Saturday) to help him feed his large herd of Hereford cattle. We also used him and other ranchers as a source of crop production and economic data. Some of the ranchers that were especially helpful in providing useful information and showing me the basin were the Spann brothers, Mr. Walker, Webb Whinnery, O. O'Fallon, Craig Goodwin and A.N. Thornton. Floyd Betts, Gunnison County Agent, was also helpful in introducing us to the area and providing agricultural data.

The month of June was a busy month. I had E. B. Debler, now Regional Director of Region 7, along with Ben Powell and others meet with me and local leaders. State Fish and Game officials and Park Service officials made contact and expressed their concerns about future resource development. Soil scientist, Art Mohlman from the Regional Office, toured the Basin and met with local leaders and discussed with them their concerns about standards used to classify irrigable lands in the basin. After extensive discussion and review of areas in question, the Bureau agreed to add a pasture land class to the standards and reclassify Basin lands.

When this decision was made and accepted locally and within the Bureau, Earl Edwards and Uel Hunting were detailed from Vernal to Gunnison to initiate the reclassification. Local laborers were hired to assist them. A local young man, Burton (Shorty) Ray, was also trained to classify. Classification work continued throughout the summer and fall until weather prevented further field work. Oscar Bartholomew and Art Mohlman, Regional Soil Scientists, visited often throughout the summer to assure classification met adopted standards. A Draftsman was detailed from Grand Junction to prepare revised land classification maps and determine new irrigable acreages. Edwards and Hunting returned to Vernal at the end of September. Employment of all laborers was terminated.

During the summer, I worked closely with Cavis Ham, District Engineer for Geological Survey, in establishing additional stream Gaging Stations on Gunnison River tributaries. He also helped in providing long term stream flow estimates where only random measurements were available. These records were also furnished to Region 7's planning staff after approval by the regional staff.

E. B. Debler and Ben Powell were frequent visitors to our office during the summer and fall seeking information on land classification and project plans which I had been cautioned not to release. Debler tried to intimidate me by reminding me who he had been and who he was, but he never got any information before it was approved for release by the Regional Office.

In early fall and winter, two aides and a professional engineer, John Shepherd, were added to our staff. It now consisted of me, Shepherd, a clerk and three aides.

In early November, Regional Director Larson, Reid Jerman, and Clifford Jex paid a visit to Gunnison, reviewed our work, and attended a public meeting I had arranged. Our activities and plans were presented as well as a proposal by Henry Lake, local newspaper publisher, recommending extensive reservoir and hydropower development. The outcome of the meeting was quite positive, but increased our work when Larson agreed to evaluate Lake's plan and report our findings.

After Thanksgiving, Region 7 called a public meeting to outline transbasin diversion plans. Although it was sub-zero weather, Webster Community Hall was packed with every public official in the area, businessmen, ranchers, and even some State officials. E. B. Debler made the presentation and



other Region 7 officials answered questions. After a lengthy meeting lasting more than three hours, it was obvious the people were strongly opposed to export of water from the basin. Even some of the State officials supported the local view.

Norman Platt, soil scientist, reported for work in mid-January 1946 and assumed responsibility for the Land Classification surveys and report. Shepherd and others were working on water supply studies and gathering agricultural production data.

I was still being called on to help the Vernal staff and the Regional Office on Uintah Basin studies in connection with the Colorado Basin report. I spent most of February and March in Vernal and Salt Lake. I returned to Gunnison the first of April.

During my absence in Salt Lake I had interviewed George Finlinson, an engineer, and Floyd Larsen, a soil scientist, for employment in Gunnison, and they were added to my staff. Larsen replaced Platt who was transferred to Montrose. Eldon Watson, on Regional Office staff, was assigned to oversee land classification work on an intermittent basis. Another engineer, Junius Robbins, was added to my staff in April. A survey party was also added in early spring.

By early July my staff had formulated a plan for the Upper Gunnison Basin and we were prepared to discuss it with the local people. It had been reviewed by Jex and the Regional Office. It had also been presented to the State Water Board staff in Denver and had received a tentative approval. On July 11, 1946 we met in Webster Hall with a host of local representatives, ranchers and Clifford Stone and F.C. Merrill of the State Water Board. I outlined our tentative plans for irrigation, power development, and flood control. Jex and Jerman responded to questions directed at them. Reaction was in general, favorable. In the afternoon, Jex and Jerman and a local group toured part of the area.

All of the Land Classification work was completed in July and the Soil Scientists were transferred to Grand Junction. The two survey parties completed their work by the end of August and were also transferred or chose to look elsewhere for work. Engineering and Economic studies were nearing completion and supporting material was organized by the staff. While I wrote the report, they produced charts, tables, maps, etc. that were included in the report.

As our work neared its conclusion, each of us wondered about our assignments while two – John Shepherd and Junius Robbins, had been assured of positions in the Grand Junction Area Office. I had also been approached by Jex about coming to Grand Junction, but with key positions filled, I saw little opportunity for advancement. In October, I was approached by Debler and offered a position in Region 7, including a promotion.

On one of my trips to Salt Lake in connection with the Vernal Project Report which I was still involved in, I discussed Jex's offer and Region 7's offer with Larson and Jerman. I indicated I had no desire to work with Jex. I also indicated the Region 7 offer with a promotion was attractive but we as a family would prefer being in Region 4. They advised me they were taking steps to have me transferred to a re-established Field Office in Salt Lake which would be conducting detailed investigations of the Weber River Basin in Utah and Colorado River Main Stem Projects. They indicated J.C. Douglas would be in charge and I would be office supervisor in charge of Engineering and Economic Studies and Reports. Although they did not offer a promotion with the transfer they assured me it would be forthcoming in a few months. It actually came a year later.

The report on the Upper Gunnison River Basin was completed in early November. Employees were transferred or terminated their employment. I vacated the office about November 20 and with my family departed for a vacation with family in Utah and Idaho.

Salt Lake Planning Office



U.S. Department of the Interior
Bureau of Reclamation

I reported for work in Salt Lake City the first week of December, 1946. My first surprise was to find my supervisor was Harry Wilbert instead of Jim Douglas. Between the time I had learned of my new assignment and reported for duty, Harry had been discharged from military service and was now in charge of the field office. Harry had been in charge of Weber Basin Planning before he was called to active Army duty in 1941. I had known him at that time. As a returning veteran, Harry had re-employment rights. I learned Jim had been assigned to another Region at his request.

The staff of the planning office consisted of two survey parties, a clerk, a draftsman, an economist and 8 or 10 engineers. Many of them were returning veterans.

I was still involved in the Vernal Project Report and spent several days in December on that study including a trip to Vernal. Discussions with a soil scientist and economist led to the decision that reconnaissance land classification must be upgraded which would cause a long delay before the report could be completed. Regional Planning Division reluctantly agreed to the delay.

I was also involved in the Gunnison studies and before Christmas made a trip to Grand Junction for a meeting with Regional 7 people.

It was January 1947 before I was able to become involved in the Weber River Basin Studies. Even then I made a trip to Grand Junction in mid-January.

On reviewing the Weber Basin Studies I found the engineers involved evaluating information on previously selected reservoir sites throughout the Basin. These included sites on the south fork of Ogden River, East Canyon Creek, Lost Creek and Weber River above Echo Reservoir.

Field crews were making surveys of canal routes and upgrading dam and reservoir data that had been obtained several years earlier by the Utah State Engineers Office.

One area where there was a lack of data was in the present use of water by municipalities and industries. Wilbert had not addressed this matter before the war nor had he projected future uses. Another potential problem that I felt was being overlooked was involving city and county officials and irrigation company offices in our investigations. My experience in Gunnison and Vernal had made me realize how important input from these sources helped gain support for adopted plans and provided much needed basic data. Over the next several months I, along with my staff, made innumerable contacts with all known water user organizations. We also made State and Federal Fish and Wildlife and Park Agencies aware of our activities and invited their participation.

Economic height studies of dams were an ongoing activity. We were also studying alternate ways of bringing water from Weber River into Davis County. Another matter was the determination of available water supply at key locations. It involved determination of historical streams and diversions, water rights, future diversions to Provo River, and water filings in good standing but not yet used.

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Toward the end of the year, R. C. Johnson finally moved over the field office and assumed full control of the work. As he moved, the area of responsibility was enlarged to include Provo River Basin and more work on the Colorado River Main Stem. We were also assigned responsibility for completion



of the Vernal Project Report. The Vernal had been closed. H. A. Hunt was placed in charge of field work on the Colorado River and was directed to immediately get additional field data on Echo Park and Split Mountain Dam sites. The plan was to complete an interim report on these potential hydro developments in four months.

Funding of the enlarged office and staff was creating a problem. To get support for more funding, the Regional Office requested we produce a status report on the Weber Basin Project and the interim on Echo Park and Split Mountain.

In early January the status report on the Weber Basin Project was completed and we determined a need of an additional \$35,000 for the remainder of fiscal year 1948 and \$400,000 for fiscal year 1949. The status report and funding information was sent to Assistant Regional Director Clinton Woods, who was in Washington DC on programming and budget matters.

While work on Weber Basin had a high priority, we were also urged to complete the Vernal Project Report. During the first three months of 1948, half the office staff was involved assembling supporting appendices, writing, typing, and assembling the report. The report was transmitted to Region in April, but it lacked approval of cost estimates by Denver Office.

In June 1948, R. C. Johnson was selected by the Commissioner of Reclamation to head a team to study water and hydro-power development in Alaska. When he left on short notice, I was appointed Acting Area Engineer by Regional Director Larson. At the time it was uncertain as to the length of his absence or whether he would ever return. Apparently this uncertainty delayed a promotion for me for nearly a year.

When I was appointed to the Acting position, I placed Hollis Hunt in charge of all field activities and William Huffman in charge of the office activities except the administrative functions which I managed. We also suggested to the Region that activities associated with the Provo River Basin be transferred to the office in Spanish Fork studying the Central Utah Project. This was accomplished and received with enthusiasm by the staff.

My involvement with the Vernal Report and Johnson's indifference about contacts with local interests had prevented me from keeping up our contacts with several key people in the Weber Basin. I was reminded of this when DeLore Nichols, Davis County Extension Agent and Joe Johnson, spokesman for Davis County Water Users, visited my office and inquired about the status of our studies. They indicated they had been in touch with Senator A. V. Watkins. He had indicated he was ready to introduce a bill in Congress to authorize the project as soon as the Report was available. I reported this to Jerman and Larson.

With the project plan nearing acceptance with the help of members of the staff, we attempted to contact every water entity in the four county area of the Basin. We also appeared before a number of civic clubs. Well over 50 meetings were attended over a period of several months. We estimated nearly 1,000 people were exposed to the plan. The reaction to the plan was very favorable though we had individuals who thought they would be adversely affected by the development and expressed opposition.

As supporting volumes of data were assembled to support our report, we were working closely with State and Federal agencies getting their input and comments. We were especially concerned about the reaction of fish and wildlife and recreation interests at the State and Federal levels. We also met with the Corp of Engineers personnel from Sacramento over a period of months to get their endorsement of the Project flood control plan.



Not long after DeLore Nichols and Joe Johnson contacted me, Senator Watkins contacted the Regional Director and wanted the work on the report accelerated. Being a close personal friend, Larson painted a rosy picture of our progress and assured him the report would be finished early in 1949.

After the water users found the project plan generally acceptable, they formed a committee to explore what kind of organization to form to promote the project to contract with the Bureau for its construction and to operate it.

Some of the key people in promotion and organizing were: Summit County Ed Sorenson and Ralph Richards; Morgan County Harold Clark; Weber County D. D. McKay, Ezra Fjeldsted, Judge Howell, Elmer Carver, Rulon White and Win Templeton; Davis County D. D. Harris, Leroy Smith, Joe Johnson, DeLore Nichols, Harold Ellison and Ward Holbrook.

The first six months of 1949 were very hectic. The entire staff was involved in completing the report on the Weber Basin Project that must be cleared by the Departments of Interior, Army, and Agriculture before being submitted to Congress for consideration. A great deal of our time was spent in getting the Fish and Wildlife Service, National Park Service and Corp of Army Engineers to recognize the need for reports and favorable comments on the Project Plan. The local people even got the Congressional delegation to apply pressure on these agencies.

Progress was not as fast as Senator Watkins had expected, so on a visit to Utah in April 1949 he arranged a meeting with Larson, Jerman, and me in Salt Lake. He demanded we have the report in Washington in June. He advised us he was introducing a bill to authorize the Project and would hold hearings in July.

Good progress was being made and by an extra effort and cooperation from State and Federal agencies, we transmitted the report to Washington in late June. Our Washington Office, under pressure from Senator Watkins for early submission of the report to Congress, requested help from the Region in obtaining clearance from other agencies of government. Paul Sant, economist, and I were detailed to the nation's capitol to assist in getting the necessary agency clearance so the report could go to Congress.

Paul and I arrived in Washington DC on a United flight from Salt Lake on Wednesday, July 6, 1949 and went directly to the Reclamation Office in the Interior Building. We spent the afternoon meeting Bureau people that we would be working with.

The next eight days were long and difficult. Our biggest difficulty was clearing the report within the Bureau. We would confer all day and spend the evenings developing data, revising part of the Report and preparing hearing statements for the upcoming hearings. We also met with Interior agencies, the Agricultural Department and Corp of Engineers representatives and cleared the Project Plan with them.

We also found time to confer frequently with the Utah Congressional Delegation to report progress and receive encouragement. The revised report was finally cleared and transmitted to Congress two days before the joint committee of Congress was scheduled to hold hearings.

The hearings were held in the House Office Building in the afternoon of July 15. Testimony was given by Utah Representative Walter Granger, Senator Arthur Watkins, and Assistant Commissioner Wesley Nelson. After their presentations, I took the stand, described the project and answered questions. The hearing concluded about 5 pm. I called the Regional Director and reported on the hearings.



The next few days were spent on matters relating to the Central Utah Project and Colorado River studies. We also cleared up unfinished business on the Weber Basin Project. On July 19, 1949, we attended the House of Representatives Public Lands Committee hearing where the Committee adopted an amended bill to authorize construction and sent it to the full House for final action.

From July 20 to 24 I was on leave visiting my brother Alvin in Madison, Wisconsin. On returning to work on the 25th, I was busy briefing the Regional Director and staff on our Washington experiences.

On the 26th, Assistant Secretary William Warne and Commissioner Michael Strauss were in the Regional Office for discussions on the Colorado River Studies. I with some of my staff participated in the discussion.

From July 27th to 30th, I accompanied Mr. Warne, Mr. Strauss and Director Larson on an airplane flight over the Green and Colorado River Basins. I pointed out potential dam and reservoir sites under investigation as well as irrigation projects and other points of interest. We visited the Oil Shale Pilot Plant at Rifle, Colorado, the Grand Junction Area Office, the Glen Canyon dam site, and the Regional Office at Boulder City, Nevada. We returned to Salt Lake by United Air Lines. After spending a few days briefing supervisors and staff on recent activities, I took a much needed two week vacation.

When I returned to work on August 23, I learned the bill to authorize the construction of the Weber Basin Project had been passed by both Houses of Congress. I was informed it was on President Truman's desk for signature but was being held up because of provisions that differed from basic Reclamation Law. The principal hang up was over (1) sixty year repayment period; (2) use of interest payments on municipal and industrial water to assist in repayment of irrigation cost allocation, and (3) non-reimbursable cost allocation to Recreation and Fish and Wildlife improvements. The Department of Agriculture was raising questions on adequacy of land classification and repayment studies. The Corp of Engineers too had questions on the flood control plan. The President signed the Authorizing Act on August 29, but on August 30 he signed a statement calling for more detailed study and greater involvement by other agencies of government before construction funds were requested. Because of the statement, the would take place in the planning program, including detailed study of favorable projects and transfer of personnel.

During my stay in Vernal, the local School District was conducting an adult education program and I was engaged to teach a night class in modern irrigation principles and practices. The winter of 1943-44 I had 10 students and the following year more than 20 participated.

In February 1945 I was asked to take an assignment in Gunnison, Colorado to conduct a reconnaissance study of potential consumptive use in the Gunnison River Basin. At this time the Area Planning Office in Pueblo, Colorado was studying the possible transmountain diversion of water from the Western slope to the Arkansas River.

Ben Powell, the Area Engineer, had generated some bad publicity for the Bureau when he located a small field office in Gunnison without consulting local leaders or Clifford Stone, Director of the Colorado State Water Board. The action resulted in a request to Region 4 to establish an office in Gunnison and conduct an in-basin study.

I was approached by Reid Jerman to establish a field office in Gunnison, Colorado and to be under the direction of Clifford Jex, the Area Engineer at Grand Junction. Having seen Jex in action and knowing he was behind schedule in his assignment, I indicated a reluctance to accept the transfer. Later when Larson and Jerman agreed I would be responsible to Jerman and only administrative matters would be handled by the Area Office did I agree to make the move. Of course, a promotion to Associate Engineer, salary \$3,200 per annum also influenced my decision as well as my wife's willingness to move again.



March 1945 was a transition. I made a trip in a government car to Grand Junction and conferred with Jex. We then together made a trip to Gunnison and vicinity where we made contact with Ed Dutcher, attorney; Henry Lake, a newspaper publisher, a postmaster, real estate people, etc. The community now knew we intended to establish an office in Gunnison and conduct a water and land resource study.

After a few days in Colorado, I returned to Vernal and spent a few days winding up my work there and packing. On March 23, we left Vernal and drove to Salt Lake. We spent Saturday morning conferring with Regional Office then drove to Lanark, Idaho to visit my wife's family. We spent the weekend there, returning to Salt Lake via bus on the 27th. My wife and two children remained in Idaho to visit her parents. After spending a day in the Regional Office discussing personnel needs and other matters, I took a night train to Grand Junction, arriving there the morning of March 29.

After spending a week in the Area Office in Grand Junction reviewing water supply and land classification data, I drove to Gunnison to establish an office there. It took me a week to rent a house and office space and install recorders at two stream flow stations that had been abandoned by Geological Survey because of the war. When I returned to Grand Junction, I learned the Regional Director wanted me to attend a meeting in Vernal on April 20. I spent the days before going to Vernal working up stream flow data and attending a Colorado Water Board Meeting at Glenwood Springs, where Jex and I outlined our work program for the next several months.

I took a train to Salt Lake on the 19th. Reid Jerman, Stuart McMaster and I drove to Vernal on the 20th and attended a meeting with Ashley Valley water users that evening. The next day we met with Brush Creek water users in Jensen, Utah. The meetings were held to outline project plans for the two areas and receive comments, suggestions, and reactions. I returned to Salt Lake late on the 21st.

I then spent a week on leave with family in Idaho and Hinckley, Utah; then we drove to Gunnison. Furniture was delivered by a government truck on May 2 and we established residence on Main Street just north of the Business District. On May 7, I moved office furniture and supplies to a rented space in the Quinn Building, 2nd floor. The remainder of the month was used in getting the office organized and in order, meeting with a local water users group and becoming acquainted with the area of responsibility. I also had a visit from Ben Powell of the Pueblo Planning Office and his assistant. Mr. Jex also visited when I met with local leaders. I attended a Rotary Club luncheon with Ed Dutcher and met bankers, school administrators and business leaders of the community. Since I was a member of the Lions Club in Vernal, I attended the local Lions Club luncheon a few times to see if I might be welcome. I was readily accepted and my joining the club proved to be especially beneficial for the Bureau from a public relations standpoint. I met prominent ranchers and business men at Club meetings and through them met other key ranchers in the area. Aubrey Spann and Robert Porter were especially helpful in introducing me to key leaders. I became enough of a friend to Aubrey that I was invited one winter day (a Saturday) to help him feed his large herd of Hereford cattle. We also used him and other ranchers as a source of crop production and economic data. Some of the ranchers that were especially helpful in providing useful information and showing me the basin were the Spann brothers, Mr. Walker, Webb Whinnery, O. O'Fallon, Craig Goodwin and A.N. Thornton. Floyd Betts, Gunnison County Agent, was also helpful in introducing us to the area and providing agricultural data.

The month of June was a busy month. I had E. B. Debler, now Regional Director of Region 7, along with Ben Powell and others meet with me and local leaders. State Fish and Game officials and Park Service officials made contact and expressed their concerns about future resource development. Soil scientist, Art Mohlman from the Regional Office, toured the Basin and met with local leaders and discussed with them their concerns about standards used to classify irrigable lands in the basin. After extensive discussion and review of areas in question, the Bureau agreed to add a pasture land class to the standards and reclassify Basin lands.



When this decision was made and accepted locally and within the Bureau, Earl Edwards and Uel Hunting were detailed from Vernal to Gunnison to initiate the reclassification. Local laborers were hired to assist them. A local young man, Burton (Shorty) Ray, was also trained to classify. Classification work continued throughout the summer and fall until weather prevented further field work. Oscar Bartholomew and Art Mohlman, Regional Soil Scientists, visited often throughout the summer to assure classification met adopted standards. A Draftsman was detailed from Grand Junction to prepare revised land classification maps and determine new irrigable acreages. Edwards and Hunting returned to Vernal at the end of September. Employment of all laborers was terminated.

During the summer, I worked closely with Cavis Ham, District Engineer for Geological Survey, in establishing additional stream Gaging Stations on Gunnison River tributaries. He also helped in providing long term stream flow estimates where only random measurements were available. These records were also furnished to Region 7's planning staff after approval by the regional staff.

E. B. Debler and Ben Powell were frequent visitors to our office during the summer and fall seeking information on land classification and project plans which I had been cautioned not to release. Debler tried to intimidate me by reminding me who he had been and who he was, but he never got any information before it was approved for release by the Regional Office.

In early fall and winter, two aides and a professional engineer, John Shepherd, were added to our staff. It now consisted of me, Shepherd, a clerk and three aides.

In early November, Regional Director Larson, Reid Jerman, and Clifford Jex paid a visit to Gunnison, reviewed our work, and attended a public meeting I had arranged. Our activities and plans were presented as well as a proposal by Henry Lake, local newspaper publisher, recommending extensive reservoir and hydropower development. The outcome of the meeting was quite positive, but increased our work when Larson agreed to evaluate Lake's plan and report our findings.

After Thanksgiving, Region 7 called a public meeting to outline transbasin diversion plans. Although it was sub-zero weather, Webster Community Hall was packed with every public official in the area, businessmen, ranchers, and even some State officials. E. B. Debler made the presentation and other Region 7 officials answered questions. After a lengthy meeting lasting more than three hours, it was obvious the people were strongly opposed to export of water from the basin. Even some of the State officials supported the local view.

Norman Platt, soil scientist, reported for work in mid-January 1946 and assumed responsibility for the Land Classification surveys and report. Shepherd and others were working on water supply studies and gathering agricultural production data.

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During my absence in Salt Lake I had interviewed George Finlinson, an engineer, and Floyd Larsen, a soil scientist, for employment in Gunnison, and they were added to my staff. Larsen replaced Platt who was transferred to Montrose. Eldon Watson, on Regional Office staff, was assigned to oversee land classification work on an intermittent basis. Another engineer, Junius Robbins, was added to my staff in April. A survey party was also added in early spring.

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11, 1946 we met in Webster Hall with a host of local representatives, ranchers and Clifford Stone and F.C. Merrill of the State Water Board. I outlined our tentative plans for irrigation, power development, and flood control. Jex and Jerman responded to questions directed at them. Reaction was in general, favorable. In the afternoon, Jex and Jerman and a local group toured part of the area.

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The next eight days were long and difficult. Our biggest difficulty was clearing the report within the Bureau. We would confer all day and spend the evenings developing data, revising part of the Report and preparing hearing statements for the upcoming hearings. We also met with Interior agencies, the Agricultural Department and Corp of Engineers representatives and cleared the Project Plan with them.

We also found time to confer frequently with the Utah Congressional Delegation to report progress and receive encouragement. The revised report was finally cleared and transmitted to Congress two days before the joint committee of Congress was scheduled to hold hearings.

The hearings were held in the House Office Building in the afternoon of July 15. Testimony was given by Utah Representative Walter Granger, Senator Arthur Watkins, and Assistant Commissioner Wesley Nelson. After their presentations, I took the stand, described the project and answered questions. The hearing concluded about 5 pm. I called the Regional Director and reported on the hearings.

The next few days were spent on matters relating to the Central Utah Project and Colorado River studies. We also cleared up unfinished business on the Weber Basin Project. On July 19, 1949, we attended the House of Representatives Public Lands Committee hearing where the Committee adopted an amended bill to authorize construction and sent it to the full House for final action.

From July 20 to 24 I was on leave visiting my brother Alvin in Madison, Wisconsin. On returning to work on the 25th, I was busy briefing the Regional Director and staff on our Washington experiences.

On the 26th, Assistant Secretary William Warne and Commissioner Michael Strauss were in the Regional Office for discussions on the Colorado River Studies. I with some of my staff participated in the discussion.

From July 27th to 30th, I accompanied Mr. Warne, Mr. Strauss and Director Larson on an airplane flight over the Green and Colorado River Basins. I pointed out potential dam and reservoir sites under investigation as well as irrigation projects and other points of interest. We visited the Oil Shale Pilot Plant at Rifle, Colorado, the Grand Junction Area Office, the Glen Canyon dam site, and the Regional Office at Boulder City, Nevada. We returned to Salt Lake by United Air Lines. After spending a few days briefing supervisors and staff on recent activities, I took a much needed two week vacation.

When I returned to work on August 23, I learned the bill to authorize the construction of the Weber Basin Project had been passed by both Houses of Congress. I was informed it was on President Truman's desk for signature but was being held up because of provisions that differed from basic Reclamation Law. The principal hang up was over (1) sixty year repayment period; (2) use of interest



payments on municipal and industrial water to assist in repayment of irrigation cost allocation, and (3) non-reimbursable cost allocation to Recreation and Fish and Wildlife improvements. The Department of Agriculture was raising questions on adequacy of land classification and repayment studies. The Corp of Engineers too had questions on the flood control plan. The President signed the Authorizing Act on August 29, but on August 30 he signed a statement calling for more detailed study and greater involvement by other agencies of government before construction funds were requested.

[The History of My Career - Francis Marion Warnick part 1 of 4](#)

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U.S. Department of the Interior
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Retirement Planning - You Can Afford to Retire! (2013 Edition)

By [Tammy Flanagan](#) National Institute of Transition Planning

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This is an update of a [column I wrote in 2006](#). With many employees enduring salary reductions due to furloughs, some are wondering what to do. Some of them are in a position to retire comfortably -- and don't even know it.

In a recent [Washington Post column](#), a federal employee with 45 years of service said being furloughed has had a profound effect on how she spends her money. She might not understand that her retirement benefit will provide her with as much income as her full salary (maybe more, depending on how much she saves in the Thrift Savings Plan). In addition, since Civil Service Retirement System employees like her max out at 80 percent of their high-three average salary after 41 years and 11 months of service (although unused sick leave credit can allow a higher computation), she is entitled to a refund of three years of excess retirement contributions representing 7 percent of her salary annually -- plus interest.

I recently wrote about the [80 percent rule](#) on how much of your income you need to replace in retirement. By looking at your own numbers, and considering how much money you have left over every month (or how much additional money you need to break even), you will begin to see if you need 80 percent, 100 percent, 50 percent or some other figure. You'll have more confidence in planning for life after government if you can visualize how much of your pre-retirement income you will be able to replace with retirement income sources.

Retirement Worksheet

To gauge your projected income, you will need the following documents:

Estimated retirement computation (request an estimate from your human resources office or check the employee page on your agency's website to see if your agency provides an online retirement calculator)

- Leave and earnings statement
- [TSP statement](#)
- [Social Security statement](#)
- Court order or divorce decree (if retirement benefits are affected)

Use this information to help complete the worksheet below.

Note: To produce annual figures, multiply biweekly numbers on your leave and earnings statement by 26 and monthly numbers on your retirement estimate by 12.

Annual Pre-Retirement Income		Annual Retirement Income	
Gross Salary (with locality pay)		Estimated Retirement (CSRS or FERS basic retirement benefit)	\$
		Part-Time Pro-Ration factor (1)	X
Overtime	+	Age Reduction (1)	-
Bonus	+	Unpaid Deposit/Redeposit Reduction (CSRS) (1)	-
Furlough Reduction (daily pay rate x #	-	CSRS Offset Reduction (1)	-



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of furlough days)			
Adjusted Salary	\$	Survivor Election (1)	-
Federal Taxes **	-	FERS Supplement (2)	+
State Taxes **	-	Reduced Retirement	\$
FICA Tax (Social Security)***	-	Federal Taxes	-
Medicare Tax ***	-	State Taxes (3)	-
Retirement Contributions (CSRS or FERS)	-	Health Insurance (FEHBP)	-
Thrift Savings Plan	-	Life Insurance (FEGLI)	-
TSP Catch-Up Contributions		FEDVIP (Dental and Vision Supplemental)	-
FEHBP (Health Insurance)	-	FLTCIP (Long-Term Care Insurance)	-
FEGLI (Life Insurance)	-	Other Withholdings	-
FEDVIP (Dental and Vision Supplemental)	-		
FLTCIP (Long-Term Care Insurance)	-		
Other Withholdings	-		
	-		
	-		
NET INCOME	\$	NET CSRS or FERS RETIREMENT	\$
Other Income	+	Social Security Income (4)*	+
	+	Thrift Savings Plan Income (5)*	
		Other Pensions *	+
		Other Investment Income, Inheritances, etc.*	+
		Post-Retirement Work*	+
Total Salaries, wages and other income:	\$	Total Retirement Income	\$

1. Your retirement could be reduced for part-time service, early retirement, unpaid civilian or military service credit deposits, CSRS Offset and survivor benefit reductions. These numbers can be computed on a retirement estimate prepared by your agency's benefits office located in your human resources office.
2. The FERS Supplement is not payable if you are going to work and earn substantial income after retirement (in 2013, the supplement is reduced by \$1 for every \$2 that you earn over \$15,120). If you are retiring at age 62 or later, the supplement is not payable. MRA+10 and deferred retirements are not eligible for the supplement.



3. Depending on the state you live in when you retire, you may not need to pay state income tax, or some of your retirement income may be exempt from state income tax.
4. Social Security retirement is payable at age 62 or later. Up to 85 percent of your Social Security benefit may be taxable. In some cases, your spouse (current, former or deceased) may provide Social Security benefits that could be higher than your own. Social Security will help you find the most advantageous benefit. CSRS retirees may be affected by the Windfall Elimination Provision or the Government Pension Offset.
5. Go to [the TSP Web site](#) to explore various withdrawal options. Calculators are available for monthly payout options as well as the annuity option.

*Use income after deductions for taxes and other withholdings.

**Reduce taxable income by FEHBP premiums, Flexible Spending Account contributions, FEDVIP and TSP contributions

***Reduce taxable income by FEHBP premiums, FEDVIP and Flexible Spending Account Contributions

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Gifts, joys associated with aging

The headline of this column probably sounds a bit oxymoronic. We are used to hearing about things like, “The pains of aging,” or “The problems of aging.”

The joys of aging don’t get much attention — in fact, you may not even believe that they exist. The reason is that you’ve been programmed not to believe it by a messed up culture that worships youth and disdains age.

We are conditioned to think that lost youth equates to lost happiness and that the inevitable deterioration of our bodies and our energy and our appearance spells an equally inevitable deterioration to our fulfillment and well-being.

We live in a world where we are conned and manipulated — by everything from media to plastic surgery — into judging everyone, including ourselves, by the “youth standard.”

But it is the wrong measurement and the wrong conclusion. The fact is that what you have gained far exceeds what you have lost.

Don’t idolize youth. You know better. You’ve been there. And you know that the realities of youth tilt toward naiveté, uncertainty and foolishness. Most of us would not go back — not unless we could take what we have gained.

If you are about our age — 60s — you are now at the peak of your powers and the peak of your potential.

Think about it. You may have lost a step or two on the tennis court or added a few strokes on the golf course, but you have never, ever had more smarts, more experience, more contacts, more insights, more resources, more access, more awareness or more perspective than you do right now.

And we’ll bet you also have more of some less tangible things like savvy, discernment and simple appreciation for simple things.

The biggest joys of all are likely your family. Is there anything greater than grandparenting?

For every little bit you have lost physically, you have gained bundles mentally, socially, emotionally and probably spiritually. And who wouldn’t trade bits for bundles?

And even most of the bits you have lost are still at least partially recoverable if you choose to go after them. Most of us, if we put our minds to it, could be in better physical shape next year than we are now, or even than we were five or 10 years ago. You could have better relationships with those you love next year. You can use what you have learned and what you have become to move forward or, occasionally, to go



backward to whatever you want to fix or rescue or improve. The cool thing about life is that it is rarely “too late.”

Your grandparents hoped to live long enough to see you born. You, on the other hand, can realistically hope to live long enough to see your grandchildren finish their education, marry, have children and find their places in the world. You can even help them do all of those things.

We have the advantage of being part of the biggest group ever to enter the final fourth. And there is strength and leverage in numbers. The whole world will be catering to our needs and wants and interests and ambitions.

You have far more control of your destiny now than you did in your first or second fourth — or even your third.

The bottom line is that you are better now than you have ever been, and you live in the best time there ever was to be who you are!

You have — though you may have never called it this before — the gift of age.

Richard and Linda Eyre are New York Times best-selling authors who lecture throughout the world on family-related topics. Visit them anytime at www.EyresFreeBooks.com or www.valuesparenting.com. Their latest Deseret e-book is “On the Homefront.”

<http://www.deseretnews.com/article/865580433/The-gift-and-joys-of-aging.html?pg=all>

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Ted Dunn is the New Deputy Area Manager for the Western Colorado Area Office



Ted joined the US Navy right out of high school as an Electronics Technician “ET”. During his nine years of service he served on the USS Coral Sea as a Work Center Supervisor and as an instructor at Mare Island, CA. As an instructor, Ted developed two training courses and was designated a “Master Training Specialist” responsible for course development, instructor training, instructor evaluation, and teaching.

Ted joined the Bureau of Reclamation in 1992 at the Paradox Salinity Project as an Electronics Mechanic. He was promoted to Projects Operations Supervisor and was responsible for the final 12 month production run which proved the project was cost effective and beneficial to the Salinity Program.

In 1995, Ted started working as an Electronic Equipment Mechanic “EEM” at the Curecanti Field Division responsible for the electronic maintenance at five powerplants. He also served as Vice



President and Business Manager for IBEW 2159. During his time as Business Manager he helped instituted the current UC Regional Apprenticeship Program.

Ted was promoted to Crystal Plant Supervisor II in 2002. Ted's first project as the Crystal Plant Supervisor was a unit rewind and complete plant automation upgrade. This was a major project that required a year to complete. In 2010, Ted became the Curecanti Field Division Manager of the Montrose Power Office where he oversaw the operation and maintenance of Blue Mesa, Morrow Point, Crystal, Lower Molina, and Upper Molina powerplants. The next leg of Ted's journey will be as the Deputy Area Manager for the Western Colorado Area Office. Ted's first day in the WCAO was July 29th.

Ted has been married for 29 years to his best friend Melody. They have four children Ted, Roylyn, Easton, and April. They also have two grandchildren Annaliese and Leilani. Ted enjoys traveling, jeeping, camping, hunting, woodworking, and sports.

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RECLAMATION

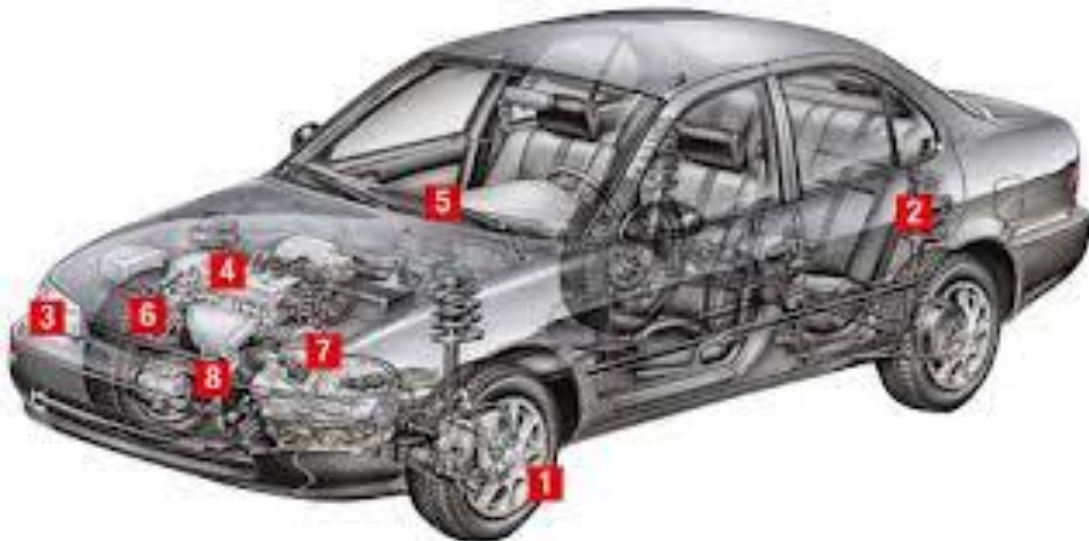
Managing Water in the West

August 2013
Upper Colorado Region



UC Today

Vehicle Safety Check List



At some point, you might be in the position to drive one of the government vehicles on government business. We ask that you read and comply with the following vehicle safety checklist:

BEFORE TRIP BEGINS DESCRIPTION	Ok?	Note Deficient Items
PERFORM WALK AROUND: NOTE the following: body or trim damage, cracked lights or windows, and worn tires. Make sure there is a working spare tire and equipment to change a tire if needed. Check outside lights; turn signals, stop lights, headlights to ensure in working order. Check oil.		
Check under the vehicle for spots under the radiator, oil pan or transmission. Be sure to put on the emergency brake and block the		



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tires before getting under the vehicle.		
Check inside the vehicle. Are mirrors, safety belts, lights, door latches and dashboard gauges functioning properly? Adjust mirrors as needed.		
Record the vehicle's mileage on the mileage report form in the vehicle, which is located in the binder inside the vehicle. If forms are missing, please alert the appropriate personnel for refills.		
Check for first aid kit. These are required in each GOV RIG.		
AFTER YOU RETURN	Ok/None	Note Deficient Items
Make sure the vehicle is filled with gas, and has been washed and cleaned for the next driver.		
Record the ending mileage on your mileage report form.		
Fill in the appropriate cost authority on the mileage report, which includes the 18-Digit Cost Authority and the 7-Digit Cost Center.		
Notate on the mileage report any problems and or damage with the vehicle.		
Attach receipts incurred to the mileage report to turn in to the Property Office or appropriate personnel.		

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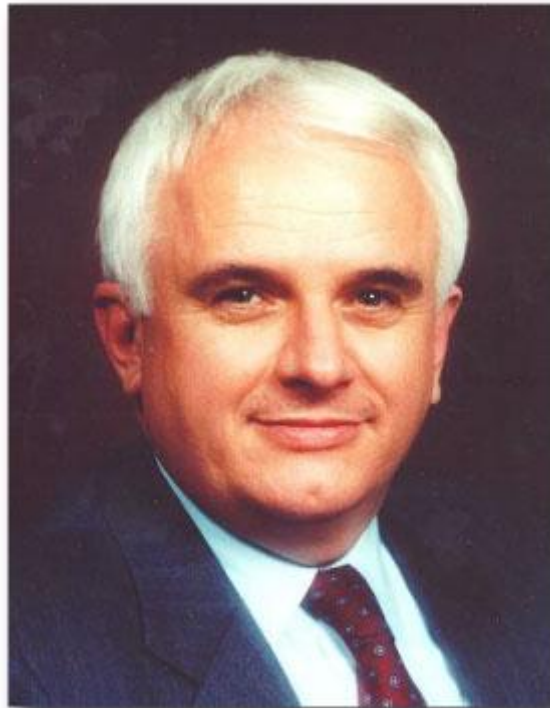


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Oral History Spotlight

The UC Regional Library has a collection of 110 oral history interviews conducted by Historians, with various Reclamation employees throughout the years. The oral histories capture candid “in their own voice” memories of employees and their experiences working for Reclamation. The oral histories preserve information about Reclamation that would not normally appear in Reclamation’s official records. Contents of the oral histories range from the humorous to reflective of the situation at the time, and all are informative!



Oral History Interview
Dennis B. Underwood
Commissioner of the Bureau of Reclamation
November 17, 1989-1993

Mr. Underwood worked extensively with the seven Basin States, the International Boundary and Water Commission, and various Federal agencies on developing and managing Colorado River water resources. After his swearing-in as Commissioner, Underwood sought Reclamation's shift from water project builder to water resources manager. During his term, Reclamation studied the potential of ground water recharge in 17 western states, produced a comprehensive water



reuse initiative for Southern California, and released Reclamation's Strategic Plan for the next century. What follows are excerpts from Mr. Underwood's oral history book:

“Decided to use a “strategic plan” development process to ensure Reclamation had a meaningful role to play.”

“The other part that I didn't mention was, you also had to become more effective and efficient. You've got to remember, all of this was going on prior to such words as "reinventing government," etcetera. I felt that if the Bureau took a hard look at itself, looked at ways of helping providing funding, making sure that what we were involved in there was a need for a Federal presence and there was a role for the Bureau of Reclamation, that we weren't just trying to make a future for the Bureau of Reclamation forever and ever, and not necessarily a meaningful role. It *had* to have a meaningful role. The vehicle I selected to do this at that time was to develop a "strategic plan" for the Bureau of Reclamation.”

“I’ve worked for the Bureau thirty-, thirty-five years, and I’ve never seen a Commissioner before.”

“As I was doing this, I also knew that, if I'm asking people to convey this message, and I don't know how far it's going, so I also knew that it was very important, in my mind, that every employee have an opportunity to see the Commissioner during my tenure. So I set out to make sure, regardless of how small an office was, that I could have an one-on-one, and you could ask me any question that you wanted to, to make myself, first of all, you had to be visible, you had to be approachable, that you weren't some distant make-believe figure in Washington, D.C. And these were some striking moments to me, because I had people come up to me who said, "I've worked for the Bureau thirty-, thirty-five years, and I've never seen a Commissioner before." They never had a chance to talk to a Commissioner before.”

...

To read the full interview of [Dennis B. Underwood click here](#), or if you prefer a hard copy contact [Chantel Bouchard](#), Regional Office Library Coordinator.

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Remote Password Change

Our new password change feature makes it easy for you to update your own DOI network password, including expired passwords from most devices connected to the Internet. Devices include your government computer, your personal home computer, tablet device, or mobile phone!

Resetting your own network password through the DOI Apps Store saves you time and frees up our IT specialists to address more technical IT issues.

Please note, if you've forgotten your password, you'll still need to contact your help desk.

Changing your Password Remotely: If you remember your current network password, changing it is easy! Just follow these simple steps:

1. Update your browser's security settings (enable TLS) (Tools > Options > Advanced > Encryption)
2. Connect to the Remote Password Management system through the [DOI Apps Store](#) – your username is what you use to login to your computer, plus "@bor.gov" at the end (grayWolf@usbr.gov), and your password is your current DOI network password
3. Click the "Preferences" Icon on the top right corner of the DOI Apps main page Under Preferences click the "General" tab
4. Enter your old password, your new password, confirm your new password, and click "Change Password"

For more details, review the Remote Password Management User Guide. You may also contact your IT help desk for support.

The IT Transformation Team will continue to identify and add more useful self-service tools to the DOI Apps Store to help create a more mobile workforce!

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Sharing Our Diversity by Sharing Your Recipes

From the kitchen of **Melissa Bishop – Easy Shepherd's Pie**

INGREDIENTS:

1 1/2 lbs ground round beef
1 onion chopped
1-2 cups vegetables - chopped carrots, corn, peas
1 1/2 - 2 lbs potatoes (3 big ones)
8 tablespoons butter (1 stick)
1/2 cup beef broth
1 teaspoon Worcestershire sauce
Salt, pepper, other seasonings of choice

Prep time: 10 minutes **Cook time:** 50 minutes



METHOD

- 1 Peel and quarter potatoes, boil in salted water until tender (about 20 minutes).
- 2 While the potatoes are cooking, melt 4 Tablespoons butter (1/2 a stick) in large frying pan.
- 3 Sauté onions in butter until tender over medium heat (10 mins). If you are adding vegetables, add them according to cooking time. Put any carrots in with the onions. Add corn or peas either at the end of the cooking of the onions, or after the meat has initially cooked.
- 4 Add ground beef and sauté until no longer pink. Add salt and pepper. Add worcesterchire sauce. Add half a cup of beef broth and cook, uncovered, over low heat for 10 minutes, adding more beef broth as necessary to keep moist.
- 5 Mash potatoes in bowl with remainder of butter, season to taste.
- 6 Place beef and onions in baking dish. Distribute mashed potatoes on top. Rough up with a fork so that there are peaks that will brown nicely. You can use the fork to make some designs in the potatoes as well.
- 7 Cook in 400 degree oven until bubbling and brown (about 30 minutes). Broil for last few minutes if necessary to brown.

Yield: Serves four.

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In Transition

Former PN Region Employee Rowe David Naillon" dies

Rowe David Naillon Rowe David 'Dave' Naillon, 77, passed away July 17, 2013 in Nampa, Idaho.

He was born May 17, 1936 in Mackay, Idaho to Burlen Rowe and Virginia Evadna (Tewalt) Naillon. Dave grew up in various southwestern Idaho towns where his mother taught school. He graduated from Melba High School in Melba, Idaho in 1954. After high school, he worked at various jobs including as a miner at Cobalt where he met Carolyn Marie Sullivan. Dave and Carolyn were married September 2, 1958 and he entered the Army that same year. He was stationed in Karlsruhe, Germany, and during his deployment Dave and Carolyn were able to travel and see much of Europe including Switzerland, Austria and France. He was honorably discharged with a Good Conduct Medal, a Marksman Badge (Carbine) and an Expert Badge (Rifle). He remained a gun enthusiast and collector for the rest of his life. He worked many different jobs over his life including mining, welding, well drilling and he ended his career with the Federal Bureau of Reclamation as a welder/mechanic shop foreman.



Dave was born with an outlaw spirit and a staunchly independent personality that often defied social customs and rules, sometimes causing consternation and concern for those closest to him, but he was also an incredibly loyal and caring man who would go out of his way to help anyone, anytime. He seemed happiest when he was doing for others and whether it was rescuing his kid sister from the top of a tree, buying groceries for a homeless man, helping someone fix their car, loaning money, or just showing up when the heavy lifting needed done, Dave could always be counted on, day or night. He also had an insatiable curiosity about the world around him and spent countless hours by himself, or with family and friends, driving around exploring the natural world. Though he enjoyed hunting and fishing, he was happiest just watching animals in their environment. Dave also loved to play poker and would play for hours,



most often with family members.

He is survived by his wife Carolyn Naillon of Challis, Idaho; and his children Carrie (Robert) Seymour of Sunnyslope, Idaho, Jane Naillon of Boise, Idaho, William (Myla) Naillon of Challis, Russell Naillon of Boise; grandchildren Hannah Seymour, Blue Seymour, Wyatt Naillon and Declan John; siblings Patricia (LeRoy) Hunsperger, Gaye (Ted) Hunsperger, Douglas Naillon, Allen (Diora) Naillon, Aaron Naillon.

He was preceded in death by his parents and two younger brothers, Jim and John Naillon.

Special thanks go out to the team at Horizon Health & Hospice, Caldwell, for their compassionate care and assistance throughout his illness, and deepest gratitude is owed to his best friend, Ed Kelly, and to his faithful dog, Ed, both of whom kept him company and made him smile up to the very end.

A memorial service will be held at Nampa Funeral Home, 415 12 Ave. S. at 2 p.m., Sunday, August 4, 2013. He will be interred at the Idaho State Veteran's Cemetery in Boise, Idaho.

An online guest book may be signed at www.nampafuneralhome.com

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Reclamation Trivia

Here's this week's set of questions:

1. The Clean Air Act limits emissions of pollutants into the atmosphere, such as sulfur dioxide, particulate matter, nitrogen dioxide, carbon monoxide, ozone, and lead.
True or False
2. The Navajo Gallup Water Supply Project (NGWSP) field work will consist of pre-construction testing and data recovery mitigation activities along the proposed potable water pipeline alignment which will consist of approximately _____ miles of pipeline, approximately _____ pumping plants, and two water treatment plants.
3. After his swearing-in as Commissioner, _____ sought Reclamation's shift from water project builder to water resources manager. During his term, Reclamation studied the potential of ground water recharge in 17 western states, produced a comprehensive water reuse initiative for Southern California, and released Reclamation's Strategic Plan for the next century.

Last week, We asked,

1. Located on **40** acres of land, the BGNDR facility opened in **2007** and provides clients with six indoor test bays, a laboratory, office space, a 30-seat conference room and outdoor test areas for testing and developing a variety of advanced water technologies.
2. On June 26, 2013, the Supreme Court ruled that Section 3 of the Defense of Marriage Act is unconstitutional. **True or False**
3. Thaddeus (Ted) Mermel worked for the bureau for 40 years, helping to design the **Hoover**, **Grand Coulee**, **Shasta** and **Hungry Horse** dams.

Last winner was – **Jason Christensen – Regional Office**

Please use this [link to send your answers](#). To be fair we will draw names from the winners and one person will receive a prize. We will reach into the prize bin for something suitable for the winner...as long as supplies last.

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RECLAMATION

Managing Water in the West

August 2013
Upper Colorado Region



What Is the Media Saying About Reclamation This Week?

[NM voters oppose Gila River Diversion](#)

[Comissioner Connor Nominated for Deputy Secretary of the Interior video](#)

[N.M. voters largely oppose diverting state's last free-flowing river -- poll](#)

[WASHINGTON, D.C. -- Secretary of the Interior Sally Jewell today praised President Obama's intent to nominate Michael L. Connor to serve as the Deputy Secretary of the Department of the Interior. Since 2009, Connor has served as Commissioner of Interi](#)

[Tribes hail nomination of Michael Connor for top Interior post](#)

[Never Again Enough: Field Notes from a Drying West](#)

[Water Wars: Texas v. Mexico](#)

[Drought affects decisions about where to fish](#)

[Interior water chief, former Bingaman aide, nominated as deputy secretary](#)

[Obama picks Connor as DOI deputy](#)

[N.M. man tapped for Interior](#)

[Secretary Jewell Lauds Presidents Intent to Nominate . . .](#)

[Wednesday federal headlines - July 31, 2013](#)

[President Obama Announces More Key Administration Posts](#)

[TRCP Commends Connor Nomination to Interior](#)

[Senate to consider tweaked Shaheen-Portman -- Reclamation chief gets nod for #2 Interior spot](#)

[Rio Chama threatened](#)

[No, Caballo Reservoir didn't rise 70 feet this week](#)

[COLUMN: This is a fish story](#)

[Drought conditions equal hunger and poor nutrition for New Mexicans](#)

[Navajo's Eh Moment, Shelly Signs Historic NGS Extension Agreement](#)

[Fourteen years of Colorado River Basin drought](#)

[Interior water chief, former Bingaman aide, nominated as deputy secretary](#)

[A Colorado newspaperman fights for his valley's water](#)

[Navajo Generating Station offers new emissions plan](#)

[Month's Best Photos for July 2013](#)

[Say goodbye to Phoenix -- and the American West](#)

[New Life for Coal Powered Plant](#)

[Jewell slams 'drastic' House cuts to agency spending](#)

[Cities mark 'day of action' with calls for water conservation, efficiency](#)

[NGS operators offer alternative to EPA demand](#)

[*New Day* -- This Week In American Indian News Special Edition: News from the Navajo Nation](#)

[Department of the Interior Contributed \\$7.89 Billion to Utah's Economy in 2012](#)

[2:12 p.m.Department of the Interior contributed \\$371 billion to U.S. economy in 2012](#)

[Navajo electric plant offers alternative emissions plan](#)

[The drying of the West](#)

[Lake Powell shrinking fast](#)

[Harsh Drought Is Drying Up New Mexico's Largest Reservoir](#)

[Farming against the odds on the Rio Grande](#)

[New Mexican nominated to be deputy Interior Secretary](#)



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[Despite summer storms, N.M. still in drought](#)

[Secretary Jewell Lauds Presidents Intent to Nominate . . .](#)

[Tides, Energy, and the Colorado River](#)

[Drought watch: over yet?](#)

[Drought-stricken trees more likely to die from burns -- study](#)

[Water compact under threat](#)

[A River disappearing](#)

[Arizona Navajo plant owners propose shutdown of coal-fired unit to cut emissions](#)

[Arizona Navajo coal power plant to shut 1 unit, upgrade 2 others](#)

[Group presents alternative to EPA's proposal to cut pollution at Navajo coal-fired power plant](#)

[Utah's shrinking reservoirs hard on fish, boaters](#)

[Navajo Power Plant Proposes Closing Unit Due to EPA Edict](#)

[Contract Awarded for Construction on Navajo Nation Municipal Pipeline](#)

[Powell: A lake in need of a break](#)

[Coal-powered electric generator in Arizona that supplies power to L.A. will run through 2044](#)

[Diverse group proposes alternative regional haze plan for Navajo power plant](#)

[Utah's shrinking reservoirs hard on fish and boaters](#)

[Bureau of Reclamation rains on parade](#)

[Is it time to panic over lack of water?](#)

[Navajo Generating Station chose path of least resistance](#)

[Opinion: Water storage is critical to Utah's prosperity](#)

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[Parched New Mexico Reservoir Reveals Effects of Prolonged Drought](#)

[Local farmer hopes petition prompts president to address Mexican water deficit](#)

[Under Water! Runoff, rain causes flooding across Rio West](#)

[Lawmakers introduce bill to ensure Mexico delivers water into Rio Grande](#)

[Most Of State In 'Severe' Drought](#)

[Colorado River Water Supply **video**](#)

[Navajo Nation approves NGS lease extension](#)

[Southwestern States Celebrate Colorado River Day](#)

[Local Officials Discuss Depleted Water Supply on Colorado River Day](#)

[Rio Grande Valley farmers offered limited surge valves at extreme discount](#)

[Federal officials announce pilot fire prevention program for West](#)

[Report connects decline in property values to projected drop in Colorado River level](#)

[Birders Go Wild After 'Best Photobomb in History'](#)

[Water security in a dry land](#)

[The Colorado River Faces A Perilous Future](#)

[Value of Water: Series to shed light on basin's water gap](#)

[Time-Lapse Video: Rio Grande drying after the rain](#)

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